PLANT MAINTENANCE CAN BENEFIT FROM LUBRICATION CONSOLIDATION

Reduces Maintenance Costs, Extends Equipment Life, Simplifies Purchasing Process

Billions of euros each year are spent to repair the damage caused by mechanical wear. In European factories, the key elements of damage are due to surface degradation including mechanical wear and fatigue—a high percentage of which is due to lubricant degradation and problems associated with related maintenance. With increased competition and rising costs maintenance professionals must find solutions to these problems. One particular attention to the lubricants they use and the suppliers selected, as well as their overall approach to management of the lubrication maintenance function. One solution is total lubrication consolidation, which offers a highly effective solution to meet continuing and unfailing industry challenges to reduce overall maintenance costs, extend equipment life, simplify the lubricant purchasing process. While this is not a new option for plant maintenance professionals, it is a great opportunity to understand new interest. The reason is simply. In the absence of any education, in these areas, no new benefit, total lubrication consolidation can provide effective improvements through better inventory control, more effective preventive maintenance, and improved overall management practices.

How can plant managers choose the best lubrication consolidation program? They should look for a ‘package’ offering a complete product line that meets the requirements of virtually every need in their plant, as well as an integrated oil analysis service, and lubrication management software. All of these offerings should be supported by local product supply and expert technical assistance. Until recently few suppliers could meet all these requirements, but the lubrication marketplace is changing due to the demand for increased production efficiencies and greater supplier performance. These demands have resulted in the re-design of a variety of programs with “twists” that make them look new, featuring claims of complete lubrication packages.

BUYERS BEWARE!

Total lubricant consolidation presents a dauntingly simple challenge that is not easily achieved. It is mainly because most suppliers simply do not truly have the capability to provide a total lubrication package, as implementation has been incomplete. As a result, many maintenance professionals are unclear about the criteria needed to select the right products and services to implement a total lubrication program. Certainly some plant operations require only a limited amount of lubrication products and services, but serve the needs of a single business unit or group of such requirements. The challenge is especially daunting, however, for those plants where thousands of parts and moving components are difficult to track and track effectively and efficiently. In addition, selecting the right supplier is a particularly tough challenge for plants where lubricants come from many companies. Often, consolidating lubrication-related purchases into a single supplier can be a big challenge for many professionals to decide if they are right.

Lubrication consolidation helps manufacturers optimize the lubrication maintenance program and continue running smoothly and reliably at maximum capacity, which is essential to profitability. Failure to do so can be costly, as preventative maintenance techniques and their associated costs. Lubrication engineers estimate that 60 percent of all mechanical failures are due to inadequate lubrication practices. Bearing engineers attribute more than 50 percent of all bearing failures to inadequate lubrication.3 Other causes for unnecessary expenses are misfits and layout changes. For example, daily oil pumps, or grease fittings that may have been overlooked due to lack of proper documentation. If it is difficult to find, it will be even more difficult to repair. A study by the Massachusetts Institute of Technology in the U.S. for example, calculated that to achieve seven percent of America’s Gross National Product (about $240 billion) is spent repairing wear damage caused by poor lubrication.

Consider, for example, the lubrication requirements of a large chemical plant. It typically has 80,000 lubrication points to attend, involving hundreds of combinations of lubricant types, lubrication points, lubrication frequencies, and methods of application. The wrong lubricant, or the correct lubricant applied in the wrong manner, can stall plant operations. With as much as stake, making sure that the right lubricant is used at the right time is critical. It is no wonder that lubrication consolidation is a high priority on maintenance agendas.

SOURCES OF ERROR

Multiple suppliers offering partial solutions to diverse lubrication requirements compromise good lubrication management by making the delivery of products and services more complex than needed. The difficulty is evident when considering that plant maintenance managers typically purchase a couple dozen or more different lubricants from as many as many suppliers. Why? Inertia, historical relationships, different buyers for different plants. Many focus on lubricants. It’s often a nightmare, yet in many instances there is just no other choice. Almost no single supplier offers a complete line of products that meet virtually every plant lubrication need. And this goes for related lubrication services, too. That’s where the words “total lubrication consolidation” come into play. What’s not just about lubricant availability. It’s about consolidating the entire spectrum of lubrication products and services in a manner that ensures that production lines operate continuously, without interruption, in the most efficient manner possible.

As a first step, maintenance professionals interested in evaluating the prospects for savings should look for suppliers that offer a total lubrication package, not just a “full” or “broader” product line. By selecting a supplier that offers the right mix of products and services, customers are better assured that their inventory carries the most appropriate lubricants for their plant needs, and that they are supplied the right lubricants at the right times.

Without a single supply source, however, redundant orders of comparable lubricants with different brand names can contribute to wasteful inventory. Maintenance professionals facing unclear or multiple lubricant choices can make mistakes that damage equipment, raise preventative maintenance and increased downtime. What’s worse, suppliers offering only a limited line of lubricants sometimes try to force-fit their products regardless of specific application requirements. As a result, lubricants over- and under-engineered for a given application can cost machine life and maintenance dollars. But the waste of maintenance dollars doesn’t just stop there.

Maintenance professionals typically adopt a conservative but costly approach to machine lubrication by replacing fluids at shorter intervals than necessary. Although the decision is often well grounded on conservative maintenance guidelines and the original equipment manufacturer (OEM), oil drain intervals can be extended in many instances contingent on the selection of better oils for the application. For example, the switch from conventional oils to a new generation of ultra-high purity mineral oils or synthetic lubricants can extend drain oils by as much as three to six times respectively. In other instances, extended drain intervals are based on a combination of factors, including an annual oil analysis readings indicating that a lubricant will tolerate extended service. Whatever the reason, the plant maintenance manager who increases the time between lubricant drain intervals cuts related costs significantly! Extending lubricating intervals also increases production time and saves on production losses due to unnecessary maintenance that might be attributed to poor lubrication practices. For these reasons, it pays to make sure your lubricant has not only the right lubricants, but also a staff of lubrication technical experts to help you solve problems and tap opportunities for savings. This helps to determine the right lubricant and setting efficient drain intervals requires detailed knowledge of lubricants and their analytical tools to determine an optimal condition, which often call for a level of expertise not readily available in house.

This is a typical situation where lubrication consolidation begins to show benefits. With the assistance of the right supplier, maintenance professionals can reliably identify opportunities for savings in their lubrication maintenance budget, and much more.

CONSOLIDATING PAYS OFF

A consolidated lubricant source with local distributors streamlines the purchasing and inventory tasks facing busy maintenance managers. However, lubricant suppliers providing the maximum benefit are those who offer more than just quick delivery from a range of products. A true vendor-partner will gladly provide application expertise and real-time support in the form of technical services, oil analysis, and lubrication management software to help you better manage complex lubrication maintenance issues.

In short, consolidating lubricant purchases in a single, integrated program with a knowledgeable, full-line supplier pays off in many ways. It can provide better return on capital investments, improve productivity and make inventory management more effective. Consolidation can also lead to better preventive maintenance, better equipment performance, cost savings, and an overall approach to management of the lubrication maintenance function. Equally important, lubrication consolidation makes you a major customer, which justifies a higher level of technical support.

(Checked on Page II)
To gauge the condition of industrial lubricants in service, an integrated oil analysis program is essential to compare each lubricant with its own performance benchmark. Effective analysis tracks multiple critical wear-related characteristics of oil in service by comparing the results with previous reports, and notes the trends. As an essential part of a lubricant consolidation program, oil analysis helps identify contamination, lubricant degradation, and abnormal machine wear. Industry-accepted tests reveal the presence of metal particles, water, and other contaminants that can affect lubricant performance.

While oil analysis alone cannot predict mechanical failures, testing can identify abnormal conditions that indicate lubricant aging, and whether it is abnormal. In so doing, analysis provides criteria to take preventive action that may reduce the potential for “tiger” equipment problems, which could result in greater expenses and unnecessary downtime.

The wise use of oil analysis data can play an instrumental role in significantly lowering overall costs associated with oil changes, and help extend equipment life. Analyzing, for example, can prevent needless, costly oil changes dictated by simplistic time intervals or criteria (such as temperature). Analysis can provide criteria for the design and rationalization of preventive maintenance routines that lend themselves to computer-based management.

4. DO THEY OFFER LUBRICATION MANAGEMENT SOFTWARE?

Lubrication management software is a relatively new offering in Europe that is not yet widely available, but it is worth considering. If you have the computer infrastructure to support it, the best programs automatically track, schedule, and plan routes for thousands of lubrication operations to provide you with accurate, cost-effective maintenance of plant lubrication. They automate the lubrication management function by exploiting and complementing oil analysis, collecting trend data and developing responsive lubrication schedules for specific equipment.

A typical large plant, for example, requires maintenance managers to track a complex schedule of lubricants and applications. There are generally two types of maintenance software on the market. One covers general plant maintenance and the other is strictly dedicated to lubrication. While general maintenance software cannot manage complex lubrication programs, dedicated lubrication management software can generate actionable lubrication information. To do so, it helps reduce lubrication errors by automatically generating information that helps you coordinate daily maintenance routines in the most efficient manner possible.

The software also identifies opportunities to more efficiently schedule lubricant orders and reduce inventory. Be sure the dedicated lubrication management software provides three key functions:

First, it should centralize lubrication requirements and protocols for an entire plant. It should catalog what lubricant is required when and how it should be applied for every lubrication point in the plant. The database should provide a productive preventive maintenance tool that can save time, reduce risk of errors, and make it easy to record completed lubrication tasks.

Second, effective lubrication management software should help you create and schedule lubrication routes for your plant. It should be able to draw on functional additive technologies including anti-oxidant, anti-wear, and extreme temperature additives.

Third, it should help you manage the entire lubrication program. By exploiting and complementing oil analysis, lubrication scheduling software can generate lubricating work orders and monitor the performance of lubricants and maintenance employees. The software also identifies opportunities to more efficiently schedule lubricant orders and reduce inventory. Be sure the dedicated lubrication management software provides three key functions:

First, it should centralize lubrication requirements and protocols for an entire plant. It should catalog what lubricant is required when and how it should be applied for every lubrication point in the plant. The database should provide a productive preventive maintenance tool that can save time, reduce risk of errors, and make it easy to record completed lubrication tasks.

Second, effective lubrication management software should help you create and schedule lubrication routes for your plant. It should be able to draw on functional additive technologies including anti-oxidant, anti-wear, and extreme temperature additives.

Third, it should help you manage the entire lubrication program. By exploiting and complementing oil analysis, lubrication scheduling software can generate lubricating work orders and monitor the performance of lubricants and maintenance employees. The software also identifies opportunities to more efficiently schedule lubricant orders and reduce inventory.

FINDING THE RIGHT LUBRICANT SUPPLIER

How can maintenance managers find the right single source of lubrication products and services to meet all their complex needs? The first step is to look beyond suppliers to include services such as local support for technical and applications questions as well as for oil analysis and lubrication management software. This integrated package is essential to effective lubrication management. You will find wide differences among lubrication vendors in the quality and extent of this “total package.” Maintenance professionals interested in tapping lubrication consolidation for savings opportunities may find it helpful to think about the following questions when evaluating potential suppliers:

1. HOW COMPLETE IS THEIR PRODUCT LINE?

The supplier best equipped to meet requirements for diverse lubricating solutions are those who offer the largest line of industrial lubricants, oil, and a wide range of products. Fluids for high-volume applications include hydraulic, compressor, and vacuum oils, and greases, greases, and multipurpose oils. Specialized industrial compounds such as greases, pastes, anti-friction coatings, and dispersants must be available in wide range of base stocks that are essential. Synthetic bases provide excellent resilience to oxidative and thermal properties of lubricants, which can be extremely high. These lubricants have much lower volatility and promote improved additive performance, which results in longer life than conventional mineral-based lubricants. Suppose you need to be able to draw on functional additive technologies including anti-oxidant, anti-wear, and extreme temperature additives.

2. HOW WELL DOES THE LOCAL REPRESENTATIVE UNDERSTAND MY NEEDS AND THE LUBRICATION PROGRAMS AT MY PLANT?

Effective lubrication consolidation demands technical support from local representatives who understand both lubricants and operating conditions in common industrial equipment. Air compressors, for example, put unique demands on lubricants. Typical operating temperatures around 160°C accelerate reactions between base oil and impurities, especially those found in mineral oils. The resulting rapid oxidation causes a sudden increase in viscosity and lubricant failure. Mineral oils in air compressors generally last only 1,000 hours. By comparison, a synthetic compressor oil, specially formulated for air compressors, lasts around 12 times as long.

Other applications impose their own requirements: Food processing equipment subjected to daily washdowns, for example, requires hygienic and cologne-free lubricants that resist emulsification. The knowledgeable consolidated lubricant supplier understands such applications and knows the right lubricants to use at the right time. Their expertise helps maintenance professionals avoid mistakes in lubricant selection and application that can shorten equipment life and stop production. And, they can also help install lubrication management software and show how it can help achieve additional efficiency improvements.
NEWS FROM THE BRITISH LUBRICANTS FEDERATION METALWORKING FLUIDS PRODUCT STEWARDSHIP GROUP

The British Lubricants Federation - Metalworking Product Stewardship Group (BLF MWPSG) was first presented to the general public and industry during the MACH 2002, Birmingham. What has happened since?

BLF MWPSG Chairman, Bert Boomkamp from Cimcool Industrial Products B.V., reported:

You may recall the main objectives for the formation of this group were:

1. That the current environment within the EU demanded that manufacturers of metalworking fluids provide products that are both safe to use and environmentally acceptable.
2. A potential existed for legislation and regulation to significantly affect the formulatory approach to these already complex products in the near future.
3. BLF MWPSG members wanted to promote technological advancements and best use of our products to MWF users.

To help achieve objective 1 BLF MWPSG participated actively with the Health and Safety Executive in producing a new guidance manual 'Working Safely with Metalworking Fluids Good Practice Manual'. The manual was introduced to Industry and metalworking fluid users through a programme of UK-wide road shows at which many BLF MWPSG members gave presentations.

BLF MWPSG members actively promote this good practice guidance as a matter of course. The KEY message from this guidance - shown below - will contribute to safer working practices.

Correctly managing your metalworking fluids will reduce the risk of ill health, prolong the life of the fluid, increase tool life, and improve machining performance.

BORIC ACID IN METALWORKING FLUIDS

Boric acid is currently the subject of much discussion regarding possible changes to the way it is labelled and regulated within the view of the metalworking fluids industry, particularly for the British Lubricants Federation Metalworking Fluids Product Stewardship Group.

What is Boric Acid?

Boric acid is a compound of boron that is often used as a raw material in water-mix metalworking fluids. It has been used widely for many years and it has wide-ranging benefits that improve the quality of different aspects of the fluids.

Boric acid in metalworking fluids is often reacted with other raw materials to form different groups of compounds, most commonly amine borates. Boric acid compounds are also supplied as additives. Key benefits in metalworking fluids are corrosion protection, pH buffering and hard water compatibility.

Proposals

The European Commission is currently considering boric acid, boron and specific silicon trioxide for possible classification and labelling. If implemented, they would be labelled as Harmful with risk phrases R26 and R63. No other compounds of boron would be included in the decision.

This proposal is being actively challenged based on more than a century of data and experience demonstrating that there are no known products or exposure - even among people who mine and refine boron compounds - that pose any known risk to humans. The current situation is that boric acid remains unclassified and will continue to be used until such time as the proposals are adopted by the EU Commission and interpreted into national legislation.

Uses of Boric Acid

Boric acid is used in over 150 industrial and consumer applications that include such uses as agriculture - where borates are an essential component of glass products, cancer treatment, food preservation, eye washes, flame retardancy and a fuel system in hydrogen fuel-cell cars.

Conclusion of the British Lubricants Federation Metalworking Fluid Product Stewardship Group

Although the borate industry is urging the EU to reconsider the proposals, it cannot be ruled out that these proposals might be implemented. In any event, this means that the use of metalworking fluids would fall into the following areas:

• END USERS
  - No effect, provided that the boron in the fluids is either in forms that are not proposed for classification, or is in the form of boron acid at levels below the threshold concentration for classification and labelling.
  - The proposed classification would only have an effect on products not fulfilling these requirements.

• PRODUCERS
  - Manufacturers handling classified raw materials would be required to review their risk assessments and health and safety data in the light of the revised classifications.

The above information is an industry view that is believed to be correct at the date of issue (June 2003) and was produced by BLF Metalworking Fluids Product Stewardship Group. It gives a brief summary of extensive studies and discussions. More information on this and other health, safety and environmental issues is available from your BLF MWPSG member company supplier.
A report entitled 'UK Man Impact of the Two-Tier Engineering and Machine
the major problems for consequence of the t prevalent in the UK for 0
This coalition of 9 trade a
4,000 companies, mx Government has failed
long-term damage that
manufacturing base an
dependence on the growth o
delivered to the service industries to d
Whilst recognising that
declared its commitment

The Health and Safety Exec
Accident Book - appr
Commissioner - at th
Occupational Health and
will help organisations to
legislation.

The new publication, the
has been revised as most
personal details and infor
reading or making an en
version, produced by th
Pensions (DWP), and oth
with the Data Protection A
Accident Book, DWP h
production to HSE.
The Information Comm
enforce the DPA, has rule
time may be given, but
their accident book to
HSE BRI

Three new Sulzer Pum
ISO9001: 2000 certif
Management Systems:
Sulzer Brazil S.A covering
sales office in Argentina.
Sulzer South Africa Ltd.
Sulzer Pumps HQ in Wint
This marks a further
manufacturing locations
These new qualifications
accordance with the
Six locations still have
However, all of these ar